

Cultures **SUCRE**

STATISTICAL MEMO

SUGAR AND OTHER BY-PRODUCTS

CAMPAIGN
2023-2024



FRANCE | EUROPE | WORLD | OTHER BY-PRODUCTS

KEY FIGURES

OF THE BEET-CANE-SUGAR SECTOR

SUGAR-PRODUCING FRANCE AS AT 1 APRIL 2024

The figures for this Statistical memo take account of the 2023-2024 campaign, when figures for this campaign are available.



SUGAR PLANTS

■ SUGAR BEET (2023-2024 campaign)

23,000 growers produced on 379,000 ha (i.e. 1.3% of the Utilised Agricultural Area) **31.5 million tonnes** of sugar beet with **16%** sugar content.

■ SUGAR CANE (2022-2023 campaign)

Nearly 2 million tonnes of sugar cane was harvested over 36,170 hectares in French overseas departments (DROM).



SUGAR PRODUCTION

In 2023-2024, Metropolitan France had five sugar companies with 20 sugar-producing plants spread in northern and eastern France.

In regulatory terms, production* in 2023-2024 is **4.2 million tonnes of beet sugar**.

DROM (French overseas departments) (2022-2023 campaign):

In all, 5 sugar factories produced **174,700 tonnes of cane sugar** (Reunion, Guadeloupe, Martinique).

Alcohol/ethanol-producing France (2022-2023 campaign):

In 2023, mainland France had 5 companies with 13 sites, 11 of which were distilleries producing alcohol from beetroot and cereals and 2 sites only performed raw alcohol rectification and dehydration.

France produced **15.2 Mhl** agricultural alcohol (bioethanol+traditional alcohol, vinification excluded) in 2022/2023.

■ **6.9 Mhl** from beet (45%) and **8.3 Mhl** (55%) from cereals (wheat+corn).

■ **10.2 Mhl** for the bioethanol (67%) and **5 Mhl** for traditional alcohol (33%).

In France, ethanol and beet sugar production puts to work **23,000** growers and supports more than **6,000** jobs in the sugar factories. The number of indirect or related jobs for agricultural alcohol production accounts for 9000 people.



FRANCE IN THE SUGAR-PRODUCING WORLD**

■ Ninth largest sugar producer in the world

■ Second beet sugar producer in the world

■ Leading sugar producer in Europe (Metropolitan France + DROM)

* The definition of sugar production (Regulation (EU) 2017/1185) counts the quantities produced at the syrup stage regardless of the subsequent use (food, non-food, alcohol/ethanol).

** Average over three years.

FRANCE



23,000
growers



31.5 Mt
of sugar beets



4.2 Mt
of beet sugar



20
active sugar factories



2 Mt
of sugar canes



0.17 Mt
of cane sugar



1st largest sugar producer in Europe
9th largest sugar producer in the globe



5

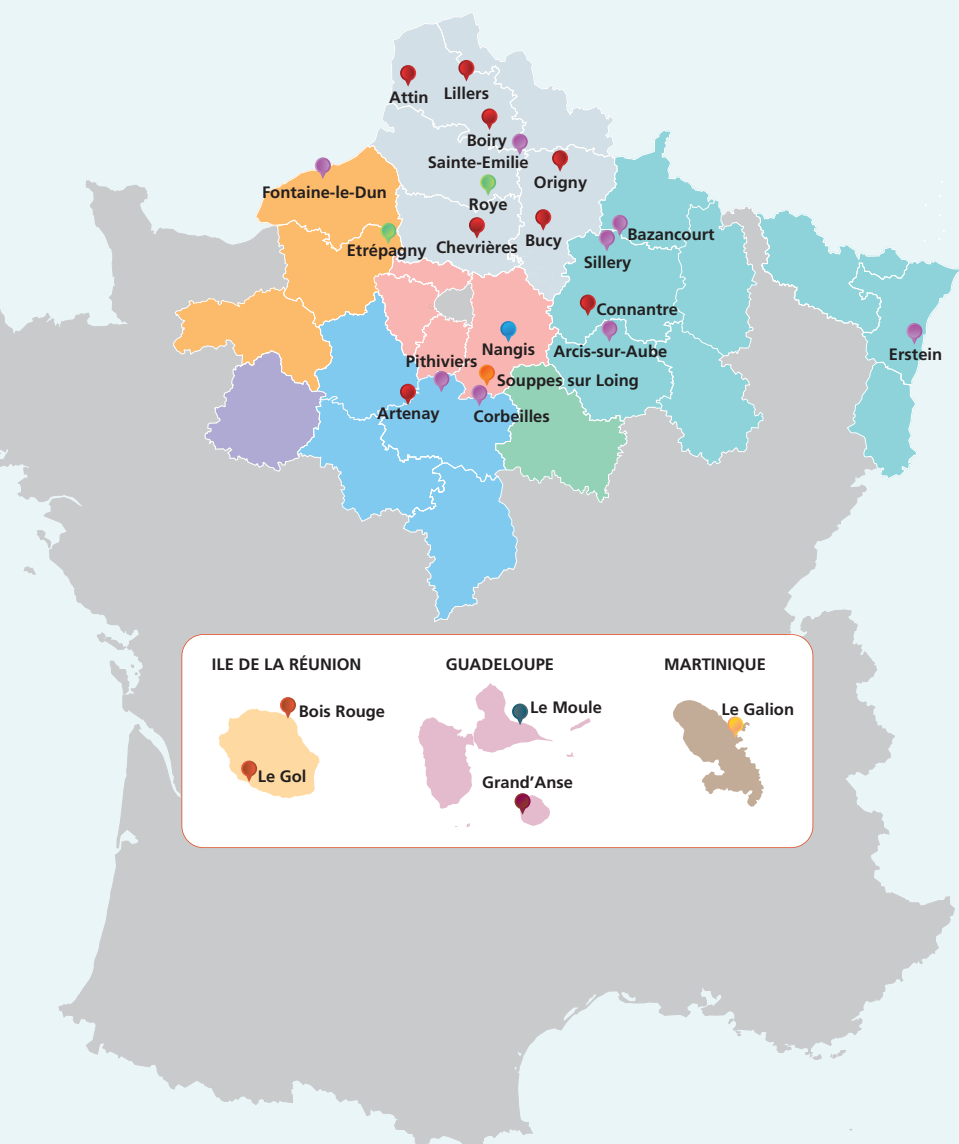
**sugar factories in French
overseas departments**

Mt = million tonnes

The figures on this statistical memo take into account the 2023-2024 campaign, when the figures for this campaign are available.

The sugar sector in France

2023 – 2024 campaign - Main sugar-producing departments



◆ Sugar beet sector in France

5 sugar companies and groups in mainland France

Groupe Cristal Union

(8 plants)

- Sucrerie d'Arcis-sur-Aube
- Sucrerie de Bazancourt
- Sucrerie de Corbeilles
- Sucrerie d'Erstein
- Sucrerie de Sillery
- Sucrerie de Fontaine-le-Dun
- Sucrerie de Pithiviers
- Sucrerie de Sainte-Emilie

Lesaffre Frères

(1 plant)

- Sucrerie de Nangis

Ouvré et Fils SA

(1 plant)

- Sucrerie de Souppes-sur-Loing

Saint Louis Sucre

(2 plants)

- Sucrerie d'Etrépagny
- Sucrerie de Roye

TEREOS

(8 plants)

- Sucrerie d'Artenay
- Sucrerie d'Attin
- Sucrerie de Boiry
- Sucrerie de Bucy
- Sucrerie de Chevières
- Sucrerie de Connantre
- Sucrerie de Lillers
- Sucrerie d'Origny

◆ Sugar cane sector in France

4 sugar companies in the French overseas departments

Reunion

TEREOS Océan Indien

- Sucrerie de Bois-Rouge
- Sucrerie du Gol

Guadeloupe

GARDEL S.A.

- Sucrerie du Moule

SUCRERIE ET RHUMERIE MARIE GALANTE S.A.

- Sucrerie de Grand'Anse

Martinique

S.A.E.M. DE PRODUCTION SUCRIÈRE ET RHUMERIE DE LA MARTINIQUE

- Sucrerie du Galion

Sources: S.N.F.S, Tereos

◆ Changes in metropolitan production

thousand tonnes of white sugar

Sugar campaign	Production	Number of sugar plants
2019-20	4,969	25
2020-21	3,445	21
2021-22	4,550	21
2022-2023 (provisional)*	3,950	21
2023-2024 (provisional)*	4,178	20

Source: S.N.F.S.

*Provisional Metropolitan sugar production

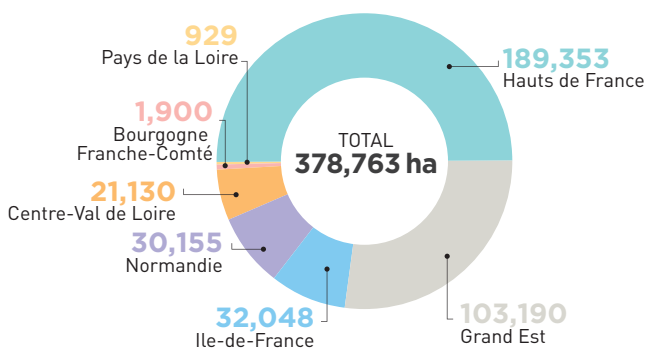
In France, the 2023/24 estimated report shows 5.4 million tonnes of sugar used, distributed in the following way: 2.8 million tonnes of sugar sold in France; 1.5 million tonnes of sugar sold in the EU; 0.3 million tonnes of sugar exported to third countries; and 0.8 million tonnes of sugar exported in the form of sugar-sweetened products.

In France, more than two thirds of the uses are destined for human consumption (table sugar, food industry products) with the remaining volume used in the chemical and pharmaceutical industries and the alcohol/ethanol sector.

◆ Sugar beet growing areas

In 2023-2024, sugar beets are grown in 7 regions in France, accounting for around 379,000 hectares¹.

Surface area of beet cultivation destined for sugar factories and sugar factories-distilleries (by region in hectares)



Source: Agreste, 01/02/2024 (2023 sowing)

1-This total includes the French farmland for growing beetroot devoted to sugar, alcohol and bioethanol production.

◆ Changes in sugar beet production

Sugar beet (all uses together)

Sugar campaign	Seeding (1,000 ha)	Sugar content (°S)	Beet yields (t at 16 °S/ha)	Tonnage of beet harvested (million t at 16 °S)
2014-15	405	17.7	92.8	37.6
2015-16	383	18.3	87.8	33.6
2016-17	402	18.3	85.8	34.5
2017-18	485	18.0	96.1	46.7
2018-19	485	19.0	82.0	39.6
2019-20	445	17.8	85.0	37.8
2020-21	421	17.1	61.4	25.8
2021-22	402	17.4	85.7	34.5
2022-23	402	17.7	77.0	30.7
2023-24 (estimations)	380	16.8	83.0	31.5

Sources: C.G.B., I.T.B.

The beet yields experienced large growth for more than 50 years (48.3 tonnes per hectare in 1960-61 versus 96.1 tonnes per hectare in 2017-18). This growth was essentially due to the progress made in the areas of genetics, seed selection and improved farming techniques.

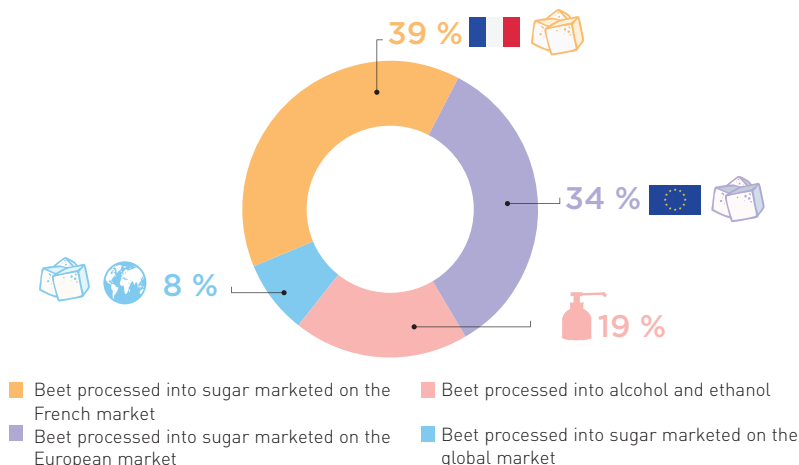
The French sector has observed that for the past ten years, the beet yields have stabilised and endured significant fluctuations due to climate variations and parasitic attacks. Restrictions on the means of combatting parasites has penalised profitability in the French sector.

The genetic improvement of the beet varieties and the progress in farming techniques remain vital components in increasing productivity and guaranteeing the continuation of the French beet-sugar-ethanol sector.

The 2023-2024 campaign stood out due to low sugar levels in the beetroot.

Sources: C.G.B.

Breakdown of beet production in 2023-2024



Source: C.G.B.

◆ Organic sector in France

The sugar beet sector players in France have been involved for many years now in an organic beetroot sugar production chain.

◆ French sugar industry: a positive contribution to the country's trade balance

In 2023-2024, French **exports** (to third countries) and **shipments** (to EU countries) of unprocessed sugar will reach **1.8 Mt**, compared with **imports** of **0.3 Mt**. The net exports (exports – imports) in 2023-2024 amount to 35% of French sugar production (including overseas departments).

Sugar is shipped mainly to the EU countries of Italy, Spain and Germany.

Outside the EU, the main customers are the United Kingdom and the countries located in West Africa, North Africa and the Middle East.

Thus, the positive balance of 930 million euros in 2023 (calendar year) shows the essential contribution made by the sugar industry to the country's balance of trade.

◆ Sugar consumption in France

The sales of sugar are a unique reflection of a notion of availability or volumes of sugar marketed at the scale of a country or a population. **In France, sales per inhabitant have been stable for more than fifty years.**

Here are the WHO* and ANSES** recommendations relating to sugar consumption. WHO recommends strongly limiting **free sugars** (added sugars and sugars found naturally in fruit juices), including cane or beet sugar, to at less than 10% of daily calories (i.e. 50 g for 2,000 Kcal) to prevent obesity and tooth decay.

ANSES made another recommendation: do not consume more than **100 g of sugars per day (excluding lactose)**, i.e. all sugars brought by food, be they naturally present (glucose, fructose or sucrose from fruit) or added to foods (sucrose from beet or cane, glucose syrups and honey mainly).

On average, adults therefore comply with the recommendations but children overrun them substantially. As it is an average, many adults are however above the recommendation.

* World Health Organization (WHO).

** Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail (ANSES).

FREE SUGARS



**WHO
RECOMMENDATION**

10%

Equalling 50 g for 2,000 kcal/day



**ADULT
CONSUMPTION**

10.5%

Equalling to 57 g/day



**CHILD
CONSUMPTION**

15.3%

Equalling to 67 g/day

TOTAL SUGARS EXCLUDING LACTOSE

**ANSES
RECOMMENDATION
adults**

100 g/day



**ADULT
CONSUMPTION**

75 g/day

Sources: CCAF (Credoc) 2019, Anses 2017

TOTAL SUGARS

(INDICATED ON THE LABEL ON THE LINE "CARBOHYDRATES INCLUDING SUGARS")

**ADDED
SUGARS**



**NATURALLY OCCURRING
SUGARS**



Fruit
juice



Fruit and
vegetable based
foods



Dairy
products



FREE SUGARS
(WHO Recommendations)

TOTAL SUGARS EXCLUDING LACTOSE
(ANSES Recommendations)

Source: Cultures Sucre

◆ Sugar's image: the French are very attached to Made in France products

The French have a well-established attraction to Made in France sugar and desserts

Published in 2023, the CSA-Cultures Sucre¹ national survey shows that **ending a meal on a sweet note is an important custom for 72% of French people**, underscoring dessert's place in their food culture.

Buying sugar produced in France is a key criteria in the French public's purchasing choices, coming in at 3rd place after the price and the type of sugar (caster sugar, sugar cubes). **For more than 8 out of 10 French people, buying sugar produced in France is considered important or very important**, with supporting French farmers (65%) and safeguarding jobs (58%) being the main factors.

Further misconceptions about sugar and a poorly understood sector

Nearly 3 out of 4 French people think that sugar consumption continues to rise when the average per capita consumption in France has remained stable for more than twenty years, according to surveys.

Putting sugar aside, 42% of the French surveyed do not know about the other opportunities in the sector. Bioethanol, however, is at the top of the 'correct answers', in front of animal feed and hand sanitizer.



1- Survey conducted on the basis of a sample representing 1,205 French people 15 years old or older, via an online self-administered survey and carried out by the surveying organisation CSA for Cultures Sucre - 2023.

EUROPE



15.8 Mt
of white sugar produced



14.6 Mt
of white sugar used



2 Mt
of white sugar
imported



1.1 Mt
of white sugar
exported



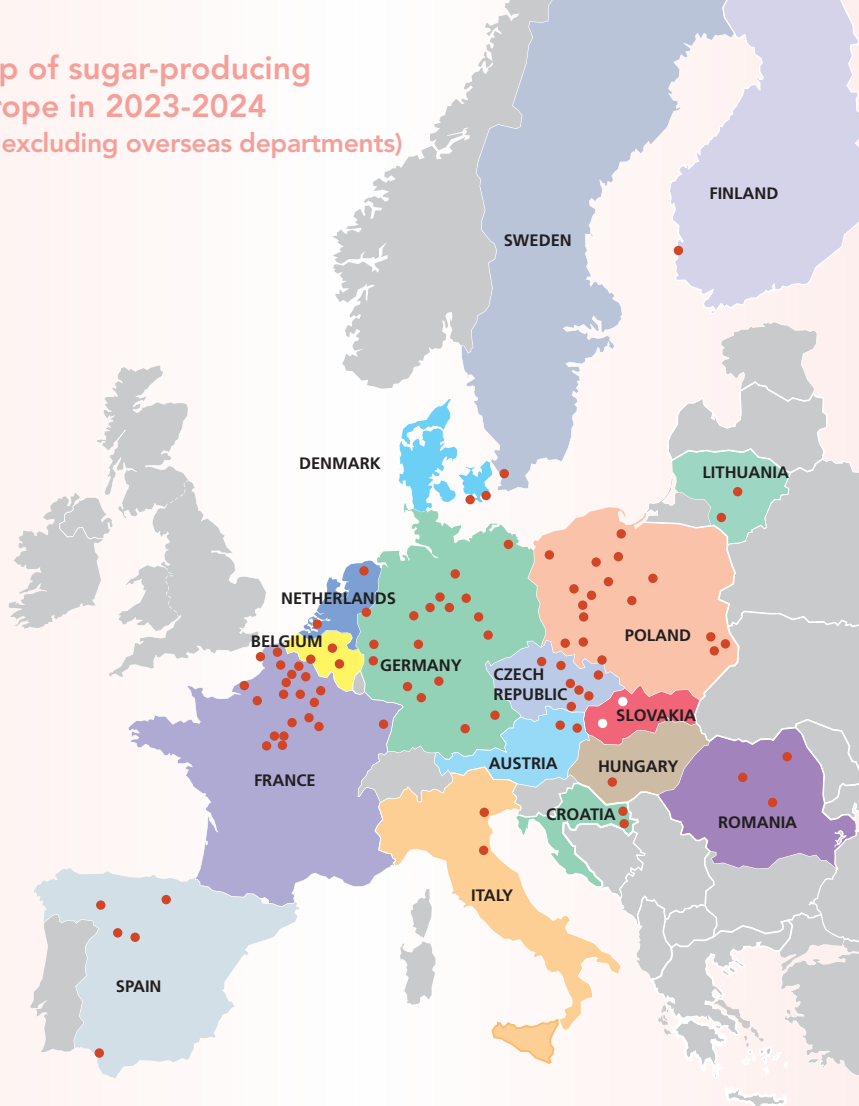
88*
active sugar factories
*in 2022-2023



97,862*
growers
*in 2022-2023

The figures for this Statistical memo take account of the 2023-2024 campaign, when figures for this campaign are available.

Map of sugar-producing Europe in 2023-2024 (EU excluding overseas departments)



The dots represent each sugar-producing plant. Sources: S.N.F.S., A.G.P.

◆ The sugar market

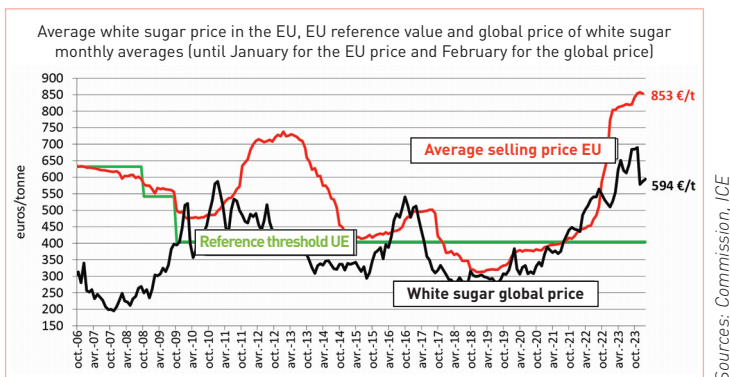
The sugar market in 2023

Throughout 2023, the global sugar market remained steady due to poorer prospects than expected for the offer when faced with a globally robust demand despite higher prices. India, the second largest global producer and a major exporter in the past few years, and Thailand, the world's third larger exporter, experienced a downturn. Only Brazil was able to handle its production appropriately, and its 2023/23 campaign progressed with very favourable conditions.

Several factors contributed to maintaining this situation: an announced drop in the production of certain countries (India, Thailand, Mexico), the absence of India in 2023/24 exports, uncertainties linked to the occurrence of the El Nino climate phenomenon, etc.

However, at the end of the year, the global market saw a correction due to the decision by Indian authorities to increase the portion of sugar cane intended for sugar production rather than for ethanol to combat inflation as well as the confirmation of very favourable climate conditions for the harvest in Brazil.

2023 also saw major development in sugar importing in the EU from Ukraine, to the advantage of the temporary easing of trade restrictions, which has been in force since June 2022.



The EU price of sugar, as observed by the information system on EU sugar prices, continued to increase in 2023 and regained, after several years of severe crises leading to the drop in farmland for beetroot production and factory closures, a level that enabled the sector to face an uncertain economic situation and decarbonisation challenges.

◆ Sugar balance of the European Union of 27*

	Production	Uses**	Exports	Imports
2023-2024 (forecast)	15,838	14,580	1,100	2,000
2022-2023	14,603	14,244	625	2,576





















* These data do not include sugar imports and exports as processed products nor the stock variations.

** All uses, including industrial uses (in millions of tonnes of white sugar).

The European Union of 27 countries produced 15.8 million tonnes of white sugar in 2023-2024. The uses cover food consumption as well as a variety of industrial uses: manufacture of alcohol and ethanol, yeasts, pharmaceutical and chemical products.

Source: European Commission

◆ European sugar industry in 2023-2024

Country (by region*)	Number of sugar plants	Production of sugar (beet)	Number of planters	Yield sugar (forecast)
	2022-2023	2023-2024** (in thousand of tonnes)	2022-2023	2023-2024 (t/ha)
Region 1				
 Austria	35	4,594	32,604	9.5
 Czech Republic				
 Denmark				
 Finland				
 Hungary				
 Lithuania				
 Poland				
 Sweden				
 Slovakia				
Region 2				
 Belgium	44	10,538	59,399	12.6
 Germany				
 France				
 Netherlands				
Region 3				
 Bulgaria	9	706	5,859	8.4
 Spain				
 Croatia				
 Italy				
 Portugal				
 Romania				
 EU 27	88	15,838	97,862	11.3

* Data for production of sugar are no longer given for each member state, excepted for some countries like France.

** (forecast) white value

Sources: European Commission, C.E.F.S

WORLD



179.7 Mt
of raw sugar produced in
the world



140.7 Mt
of cane sugar



39 Mt
of beet sugar

World's largest producer



BRAZIL

44.5 Mt
of sugar

World's largest consumer



INDIA

28 Mt
of sugar

World's largest exporter



BRAZIL

34.8 Mt
of sugar

World's largest importer

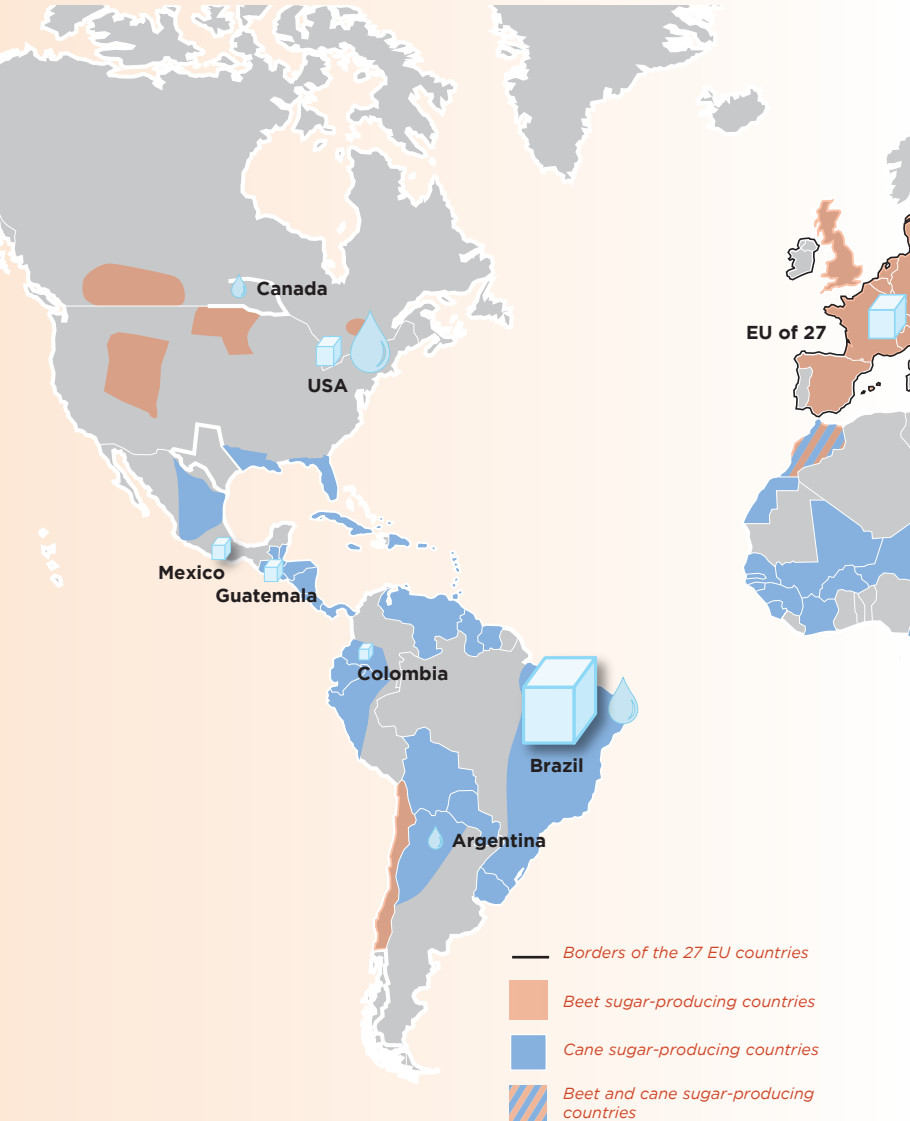


CHINA

7 Mt
of sugar

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Sugar-plant cultivation regions, sugar-producing countries and ethanol-producing countries



Main sugar-producing countries

(thousand tonnes of sugar - tel quel value)



≥ 40 Mt



≥ 30 Mt



≥ 25 Mt



≥ 20 Mt



≥ 15 Mt



≥ 10 Mt



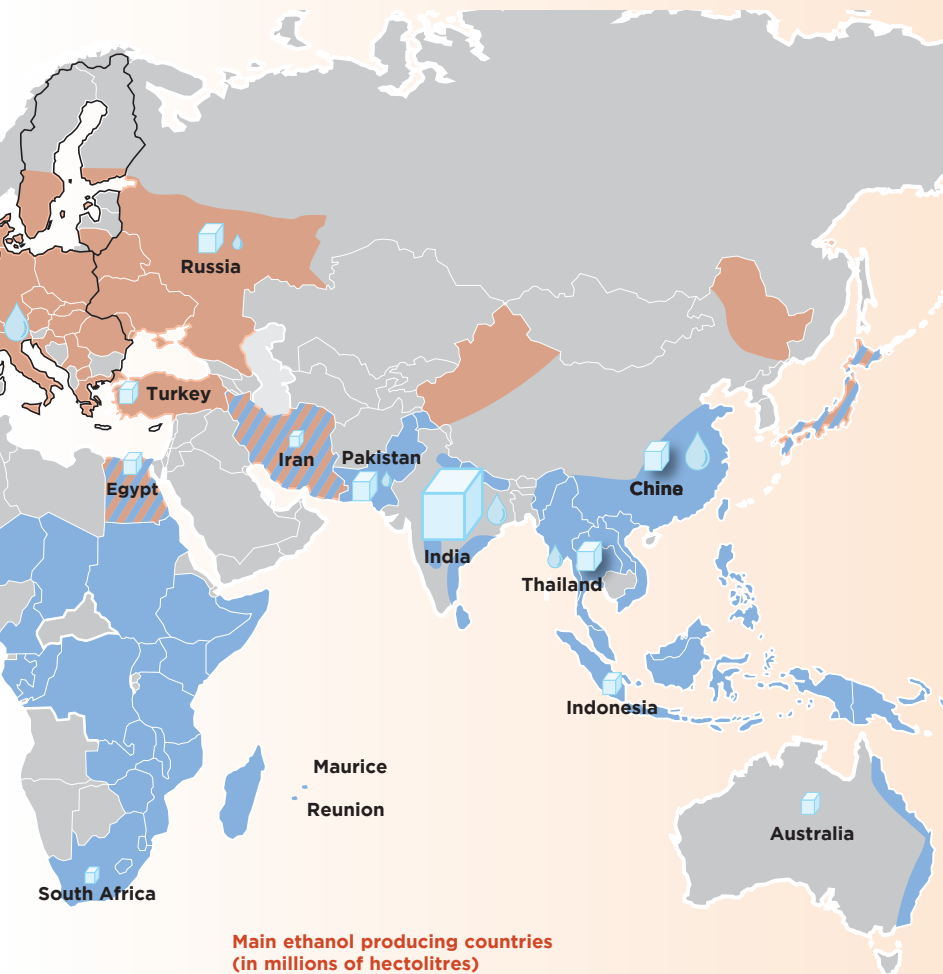
≥ 5 Mt



≥ 2,5 Mt



≥ 1 Mt



≥ 500 Mhl



≥ 300 Mhl



≥ 50 Mhl



≥ 25 Mhl



≥ 10 Mhl

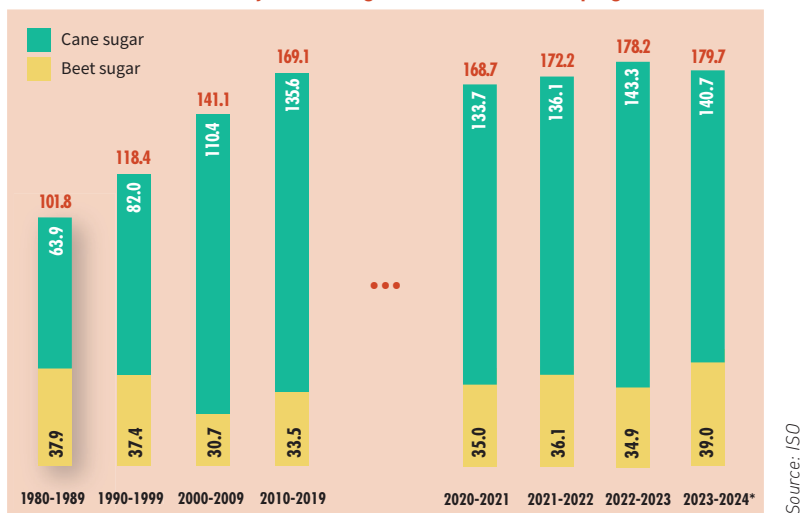


≥ 4 Mhl

◆ Changes in world sugar production

Per campaign (in millions of tonnes of raw sugar)

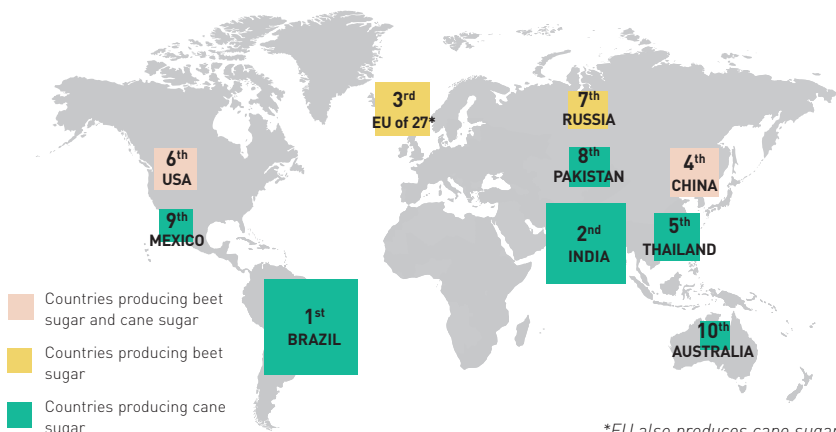
Global Production/ten-year averages and last four campaigns



1- The graph combines the figures from national campaigns with dates varying from country to country, unlike the balance table established at a fixed date. Slight differences therefore result. Cane sugar henceforth represents 80% of world production.

*Estimations

◆ 10 largest sugar-producing countries in the world



*EU also produces cane sugar in overseas departments and regions.

◆ World sugar balance

1 October to 30 September

thousand tonnes of tel quel sugar¹

Oct/sept	2021/22	2022/23	2023/24
Initial stock	102,551	98,801	98,988
Production	172,189	178,165	179,749
Consumption	176,066	177,857	180,438
Final stocks	98,801	98,988	98,581

1- In these statistical data, certain figures are expressed in white sugar, others in raw sugar and others in tel quel sugar. Global statistics are normally expressed in raw sugar; nevertheless, the ISO has been expressing balance statistics in tel quel since 2015. The conversion rate from raw to white, given by the International Sugar Council and used here by ISO, is 0.92. The conversion rate from white to raw is 1.09.

Sources: I.S.O. - S.N.F.S.

◆ Sugar worldwide 2023-2024

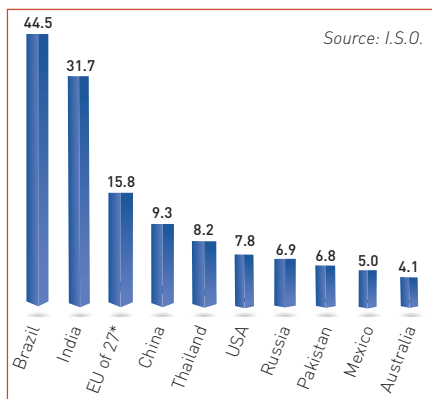


Of the **109 sugar-producing countries in the world**, some of them grow only **cane sugar** (like Brazil and India) while others grow only **beetroot** (such as Russia). Some countries grow **both sugar cane and beetroot** (China, the U.S. and Morocco). The **sugar coming from sugar cane** makes up **nearly 80%** of the world's sugar production. The sugar produced **in France comes mostly from beetroot**, in mainland France, and the rest comes from sugar cane grown in the overseas departments

◆ Sugar worldwide 2023-2024

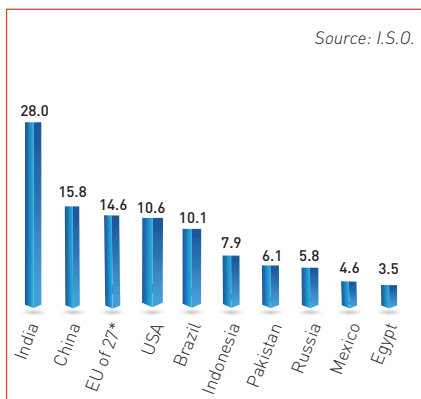
The ten largest producers

Account for 78% of world sugar production, i.e. 140.2 million tonnes of sugar (tel quel value):



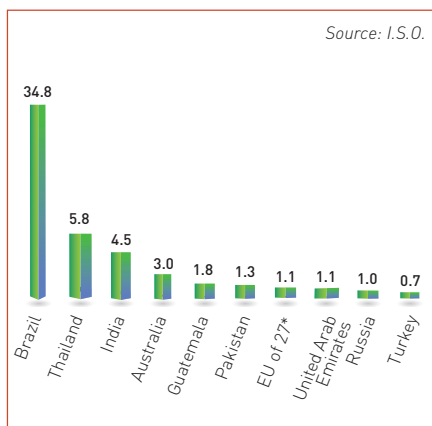
The ten largest users

Represent 59% of worldwide sugar consumption, i.e. 107.0 million tonnes of sugar (tel quel value):



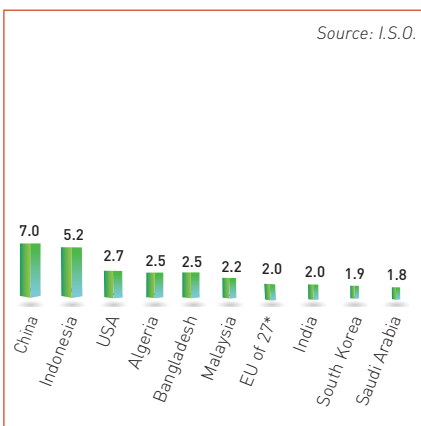
The ten largest exporters

Exports (million tonnes of tel quel sugar):



The ten largest importers

Imports (million tonnes of tel quel sugar):

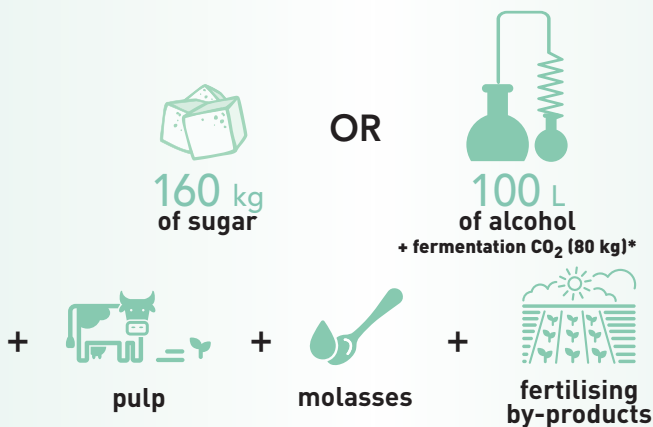


*Source: European Commission

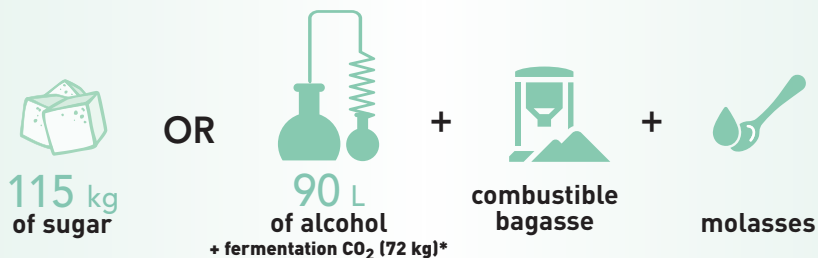
OTHER BY-PRODUCTS



A tonne of sugar beet produces



A tonne of sugar cane produces



*CO₂ comes from the plant and is captured in the air by the plant.

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◆ By-products in France and Europe

Once all the sugar has been removed by diffusion in warm water, the beet - now called pulp - is used in animal feed. Rich in vitamins, proteins and minerals, it also contains the residual sugar. This composition is an ideal feed for animals, especially ruminants which consume it fresh or dehydrated.

There are now new industrial outlets for it: opaquing agent for paper pulp, natural fibre insulation for buildings, filtering industrial effluents, etc.

Additionally, their high energy potential is an asset for the gas produced through methanisation, replacing fossil fuel, as part of future decarbonisation efforts.

Pulp production in France

2022-23 Campaign	Tonnage of dry materials	% compared to 28 EU country production
Compressed pulp	1,058,000	40%
Dehydrated pulp	298,000	14%

Sources: A.R.T.B., C.G.B.,
U.S.I.C.A., C.I.B.E.

Molasses

Molasses is the end product for both cane and sugar beet - non-crystallised, viscous and highly-coloured. It is used to help fermentation in the production of alcohol, yeasts or micronutrients and in compound animal feeds.

■ Production by the Member states of Europe of 28, 2020-2021 campaign: **3,500,000 tonnes***

■ Production in Reunion: **60,020 tonnes in 2023**

■ Production in the French West Indies:

- Martinique: **345 tonnes in 2023**

- Guadeloupe (GARDEL + SRMG): **22,315 tonnes in 2023**

Sources: CEFS, Reunion sugar syndicate; Martinique: company data; Guadeloupe: company data, Agreste.

Bagasse

Bagasse is a lignocellulosic residue obtained after grinding canes to extract the sugar which is now basically used as fuel in sugar-plant boilers.

Production in Reunion: **435,690 tonnes in 2023**

Production in Martinique: **10,700 tonnes in 2023**

Production in Guadeloupe (GARDEL + SRMG): **132,840 tonnes in 2023**

Sources: Reunion sugar syndicate; Martinique: company data; Guadeloupe: company data.

Skimmings

Co-product of the sugar-making process, the skimmings are collected when purifying the juice from the beet by precipitation of impurities. Rich in mineral salts and especially calcium, they are recycled in farming as calcareous fertilizers.

Fermentation CO₂

When sugar is transformed into alcohol, the yeast produces in equal parts alcohol and CO₂ created during fermentation. This CO₂ is incorporated into carbonated drinks instead of fossilbased CO₂. In the future, it could be used to produce synthetic fuels.

*The 2023 data were not available at the time.

ALCOHOL BIOETHANOL



15.2 Mhl
of agricultural-origin
alcohol produced in France
(2022/2023 campaign)



55,000
farmers¹



< 1%
of usable French
farming land²



13
production sites in
France³



760
million euros in the French
balance of trade in 2022 through
non imported petrol⁴



1.1
billion euros in revenue
in 2022⁵

1- Beet and grain farmers.

2- Equalling 300,000 hectares for production of bioethanol production and its food by-products.

3- 11 distilleries producing alcohol from beetroot and cereals (including 5 recent global-scale industrial facilities) and 2 sites that only carry out raw alcohol rectification and dehydration.

4- Based on yearly average of Rotterdam gasoline prices.

5- Estimate based on annual ethanol production volume and yearly average of ethanol T2 Rotterdam.

◆ Alcohol and bioethanol in France, Europe and worldwide

Ethyl alcohol or ethanol, more commonly called “**alcohol**”, is produced through the fermentation and distillation of farming substrates (coming from beetroot, cane sugar, cereals or wine by-products) or through synthesis.

Production in the sugar sector comes from fermenting the sugar contained in the juices extracted from the beet or cane, in syrups created by crystallisation and in the molasses. The alcohol is used in food (beverage alcohol), industry (solvent for chemistry), perfumery and pharmaceuticals for hydroalcoholic gel for instance. It is also being used more and more as fuel and takes then the name of **bioethanol**.

FRANCE

France was the largest European producer of alcohol in 2023 with a volume accounting for 19% of European production, ahead of Germany (14%) and the United Kingdom (10%) and Spain (7%).

Sources: FranceAgrimer, F.O. Licht

Alcohol production in France (thousand hl)

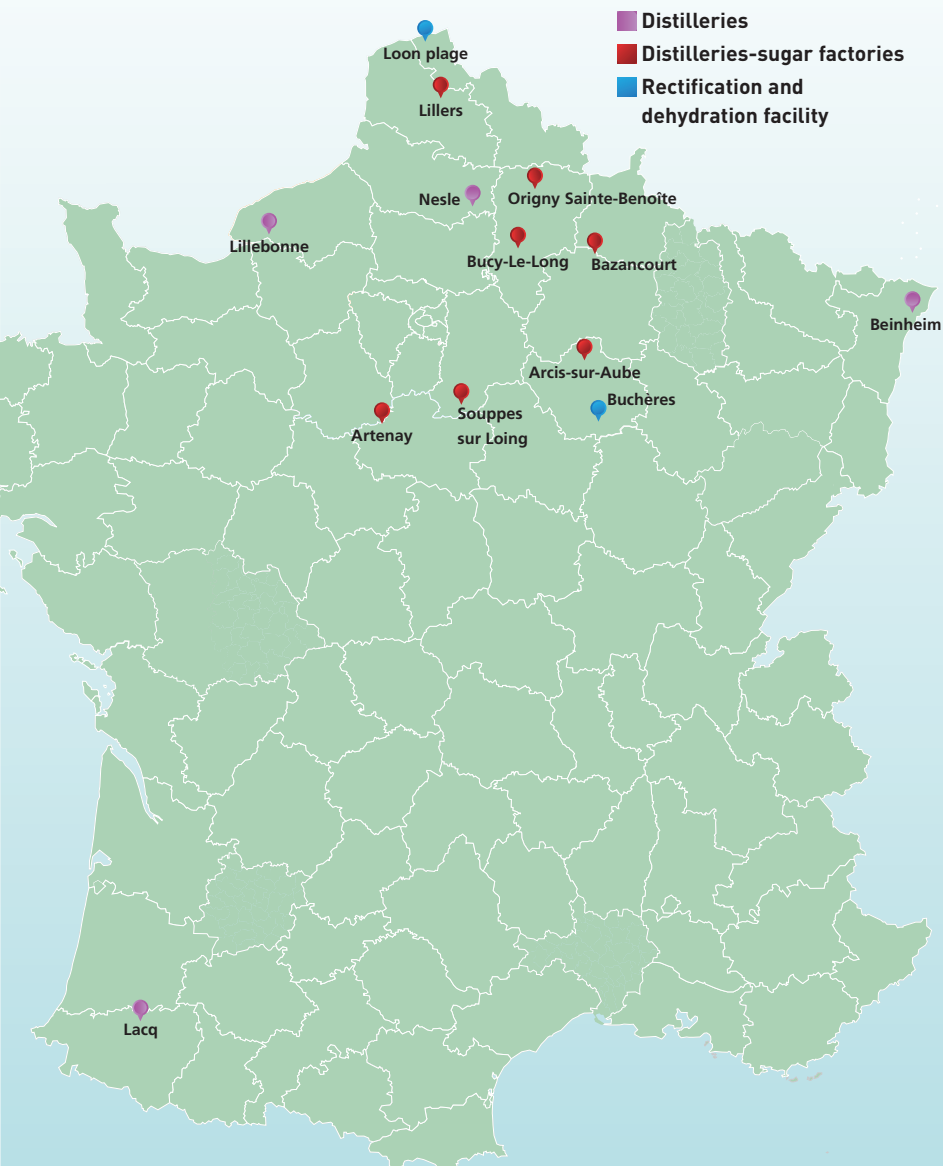
Origin	2020	2021	2022	2023
Beet*	7,960	6,500**	8,170	6,100
Cereal	8,170	8,415	8,190	7,900
Vinification (estimate)	720	436	474	700
Total	16,900	14,900	16,800	14,700

Sources: Bioéthanol France, FranceAgriMer and CGB

*Includes alcohol from molasses.

**This level is low due to the beet yellows virus that affected beetroot production in the 2020-2021 campaign

◆ Agricultural-origin alcohol sector in France



France produced 19% of European alcohol in 2023.

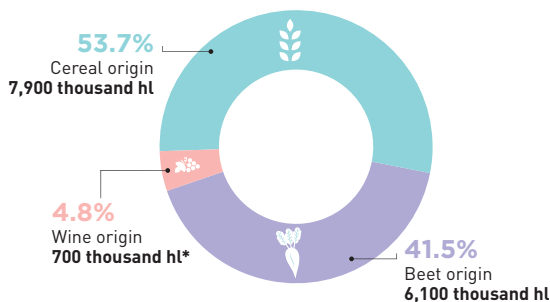
Two thirds of the alcohol produced in France is used as bioethanol (France or export).

Source: Bioéthanol France

FRANCE

Alcohol and bioethanol production

2023 breakdown depending on the origin (in %)



Source: FranceAgriMer

*European Regulation (COMMISSION DELEGATED REGULATION (EU) 2020/592 of 30 April 2020) authorising crisis distillation.

BIOETHANOL FUEL IN FRANCE

Volume of bioethanol fuel in alcohol production in France

Million hl	2019-2020	2020-2021	2021-2022	2022-2023
Alcohol production*	17.2	14.7	15.5	15.2
Including bioethanol	10.5	9.1	10.3	10.2
Beet bioethanol	3.5	2.3	3.5	3.3

* Excluding wine

Sources: Bioéthanol France, C.G.B.

Use of bioethanol in 2022

According to the General Directorate of Customs and Indirect Taxation (DGDDI), the volumes declared under the incentive tax relating to the use of renewable energy in transports (TIRUERT) in **2022** were as follows:

- Ethanol incorporated directly: **12.2 Mhl**
- Ethanol in ETBE: **3.3 Mhl**
- Total quantity of ethanol incorporated: **15.5 Mhl**

The official rate of biofuel blending, in energy after double counting, in petrol was 9.12% in 2022.

Goals for renewable energy blending in petrol in France (in energy)

France	2019	2020	2021	2022	2023	2024	2025
Objectives	7.90%	8.20%	8.60%	9.20%	9.50%	9.90%	10.50%

Source: Customs

Incentive tax relating to the use of renewable energy in transports (TIRUERT): Residue-produced ethanol (residual starch and 50% of second-jet green run-off) is above 7% up to 0.2% in 2019 and 0.4% in 2020 and 0.8% in 2021, 1% in 2022 and 2023, 1.1% in 2024 and 1.2 % in 2025.

Blending of biofuels in petrol in France (including double counting)

Bioethanol and others*	2017	2018	2019	2020	2021	2022
(% petrol)	7.50%	7.82%	7.95%	8.20%	8.63%	9.12%

*other: hydrotreated oil

2023 SP95-E10 and Superethanol-E85 report in France

■ Superethanol-E85

The 5% increase in Superethanol-E85 consumption in 2023 reinforces the surge in 2022. Superethanol-E85 thus went from 4% of the petrol market in France in 2021 to 6.5% in 2023. It reached 6.8% of the market in February 2024.

Taxed less because it's more environmentally friendly, Superethanol-E85 remains the least expensive fuel on the market: sold at 0.89* euros per litre at the pump on average, **consumers can save more than 650 euros per year for 13,000 km travelled compared with petrol SP95-E10 and more than 1,000 euros over 20,000 km.**

As of March 2024, Superethanol-E85 is now **available in more than 3,500 service stations in France****, amounting to **39% of the stations in the country**. With a growth of 6%, the retail network expanded with 270 new points of sale in 2023.

The app "Mes Stations E85" allowing users to geolocate stations, compare prices at the pump and identify stations that have run out of the fuel, was downloaded more than 160,000 times, with 11,000 of those times occurring in 2023.

* *Prix-carburants.gouv.fr* on 8 March 2024

** *stations registered on prix-carburants.gouv.fr*

E85 conversion boxes approved by the government:

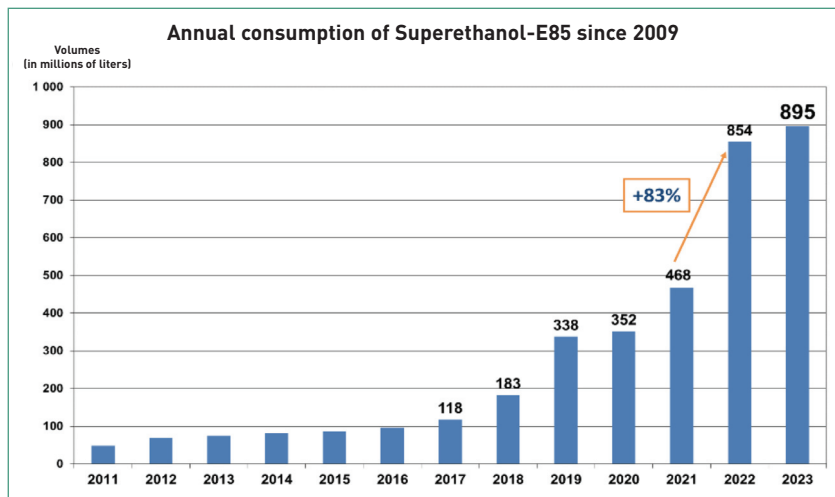
In 2023, the E85-compatible fleet increased by 23%, going from 300,000 to 370,000 E85 vehicles, including:

- 250,000 petrol vehicles equipped with the E85 converter
- 120,000 flex E85 cars.

Today, 1 manufacturer offers a line of flex-E85 vehicles:

■ Ford – line of 3 models: Puma mHEV, Focus mHEV, Kuga FHEV

Since 1 April 2021 and with the entry into force of the amended approval order, 9 petrol cars out of 10 are eligible to have an approved converter installed in them, including vehicles with a particle filter and engines 15 CV and larger. Four E85 converter manufacturers – Biomotors, Flexfuel Energy Development, Borel and eFlexfuel Technology – received at least one certification for one of the 12 categories of existing vehicles (infoe85.fr).

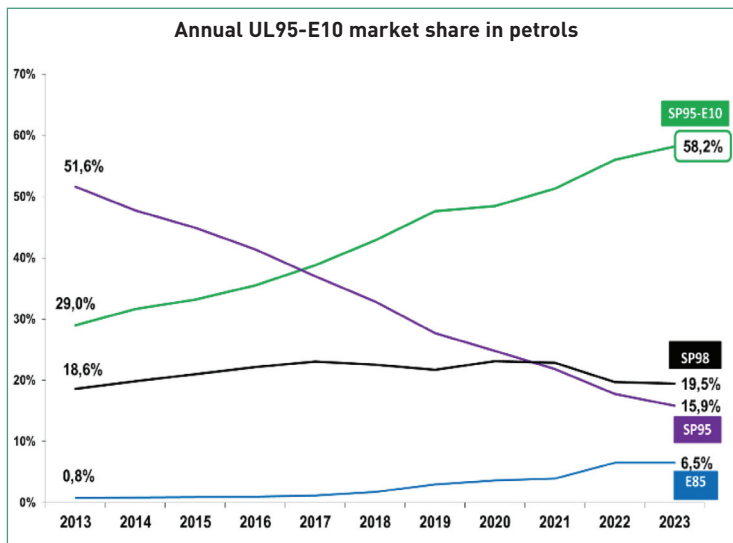


■ SP95-E10

The SP95-E10, marketed in France since 2009, contains 90% fossil-fuel petrol and up to 10% bioethanol.

The most popular petrol in **France since 2017**, SP95-E10 continued its growth in 2023. **Its annual market share grew by nearly 2 points to reach 58% in 2023.** Sold for 3 to 4 cents* less on average than SP95, SP95-E10, which contains up to 10% ethanol, is more attractive to drivers. In February 2024, it achieved a **record share of 60.4% of the petrol market.**

*prix-carburants.gouv.fr



Immediately available renewable energy

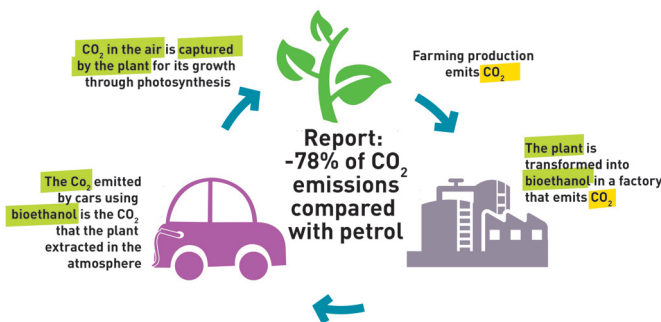
Bioethanol now replaces a portion of fossil-fuel petrol and helps combat global warming. Pure bioethanol produced in Europe reduces net greenhouse gas emissions (CO₂ equivalent) by more than 78% on average compared with the substituted fossil-fuel petrol (source: ePURE for 2022).

The bioethanol consumed in France helps prevent CO₂ emissions from one million vehicles and 800,000 tonnes of petrol is saved each year*.

*Source: DGEC CarbuRe 2022 data








A more ecological biofuel

Source : ePure 2022



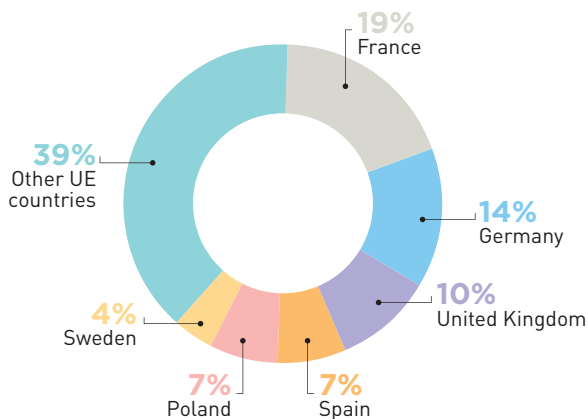
◆ EUROPE

Alcohol and bioethanol production in Europe (thousand hl)

Pays	2019	2020	2021	2022	2023*
 France	17.850	16.900	15.360	16.840	14.700
 Germany	10.280	11.000	12.220	10.750	10.300
 United Kingdom	4.600	6.000	6.200	7.500	7.750
 Spain	5.780	5.200	5.510	5.250	5.500
 Poland	4.090	4.170	4.610	5.210	5.450
 Sweden	2.800	2.800	2.850	2.850	2.750
 Other EU countries	25.770	22.870	27.750	22.600	29.640
Total	71.170	68.940	74.500	71.000	76.090

* Estimates Source: F.O. Licht

Breakdown of alcohol and bioethanol production in 2023 (estimates) (percentage)



Sources: F.O. Licht, European Commission

In Europe, bioethanol is mixed with petrol, either pure or after processing into ETBE (ethyl-tert-butyl-ether compound of half ethanol and half isobutylene, a petroleum by-product).

Agricultural alcohol uses in Europe

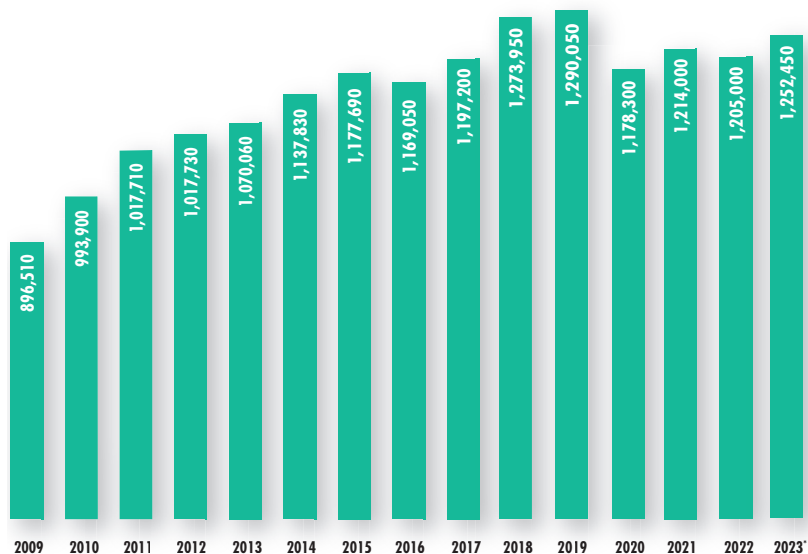
Uses (Mhl)	2020		2021	
Food	9.6	15%	10.4	16%
Industrial/Other	12.8	20%	11.2	18%
Fuel	42.6	65%	42.6	66%
Total	65.0	100%	64.1	100%

Source: European Commission, alcohol balance sheet

◆ WORLD

Changes in worldwide alcohol production (including bioethanol)

(thousand hl)









* Estimation

Source: F.O. Licht

Ethanol and alcohol in the world

The 5 largest ethanol and alcohol producers (in thousands of hectolitres)

Pays		2019	2020	2021	2022	2023*
	United States	613,259	544,000	603,000	602,000	605,150
	Brazil	331,160	355,870	317,000	306,000	348,650
	China	98,000	92,000	101,000	101,000	98,000
	European Union	71,170	67,700	78,000	71,000	76,090
	India	31,800	37,500	58,000	58,000	64,150
	Rest of the world	144,661	81,230	57,000	67,000	60,410
Total		1,290,050	1,178,300	1,193,000	1,205,000	1,252,450

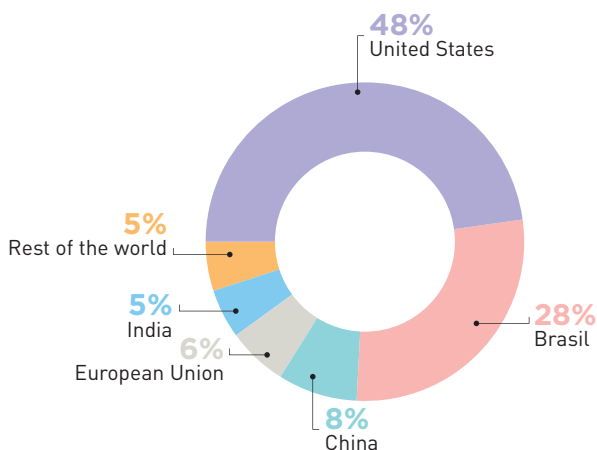
* Estimates

Source: F.O. Licht

The ten largest producers accounted for 95% of the total volume of world alcohol production in 2023.

Breakdown of alcohol production (including bioethanol) in 2023

(percentage)



Sources: F.O. Licht, European Commission

KEY FIGURES

CONSTANTS

- 1 hectolitre (hl) of bioethanol = 78.9 kg
- 1 hectolitre (hl) of petrol = 75 kg
- 1 tonne (t) of bioethanol = 12.6 hl

LOWER CALORIFIC VALUE (LCV)

- In volume, bioethanol LCV = 21.285 MJ/l
- In volume, petrol LCV = 32.020 MJ/l

ETHANOL/PETROL ENERGY RATIO = 0.66

- 1.5% of bioethanol in volume has to be added to incorporate 1% of bioethanol in LCV in petrols.
- Bioethanol sector: 78% less greenhouse gas than the petrol sector (ePURE 2022)

KEY FIGURES: AVERAGE OVER 5 YEARS



1 hectare of beet {
= 81.3 tonnes of beets
= 8,100 litres of ethanol
= 6.4 tonnes of ethanol
= 4.1 tonnes oil equivalent

Sources: A.D.E.M.E., C.G.B., Bioéthanol France.

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bioethanolcarburant.com

Cultures Sucre has produced this statistical memo by consolidating the figures supplied by the following bodies:

- **AGRESTE**, Paris, tel. +33 (0)1 49 55 40 11, www.agreste.agriculture.gouv.fr
(Agriculture Ministerial Statistical Department)
- **A.R.T.B., Paris**, tel. +33 (0)1 44 69 41 84, www.artb-france.com
(Beet Production Technical Research Association)
- **Bioéthanol France, Paris** tel. +33 (0) 1 49 52 66 97, bioethanolfrance.fr
(ex-SNPAA)
- **C.E.F.S., Brussels, Belgium**, tel. +32 (2) 762 0760, www.cefs.org
(European Association of Sugar Manufacturers)
- **C.G.B., Paris**, tel. +33 (0)1 44 69 39 00, www.cgb-france.fr
(General Confederation of Beet Growers)
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